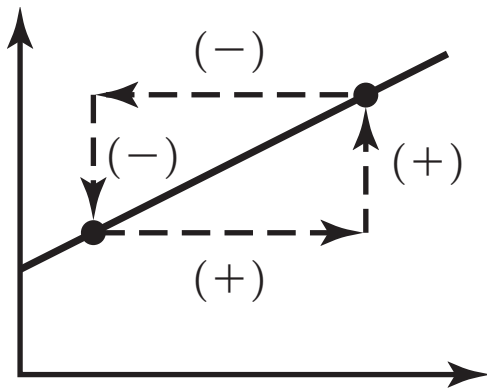
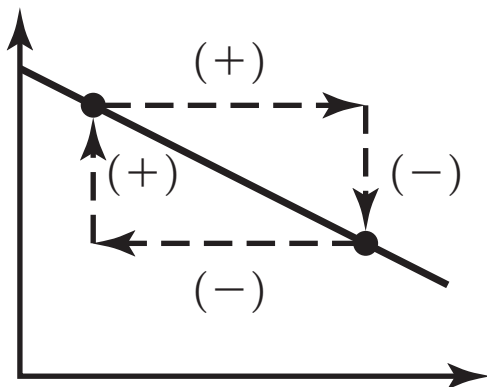


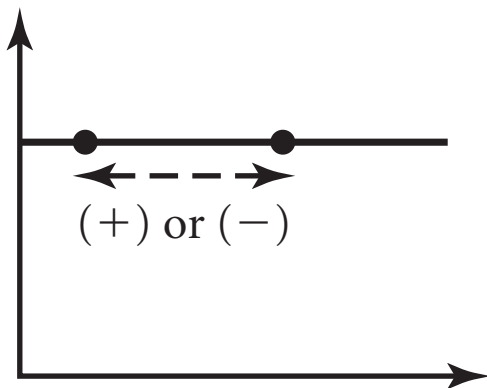
## The Four Slope Types



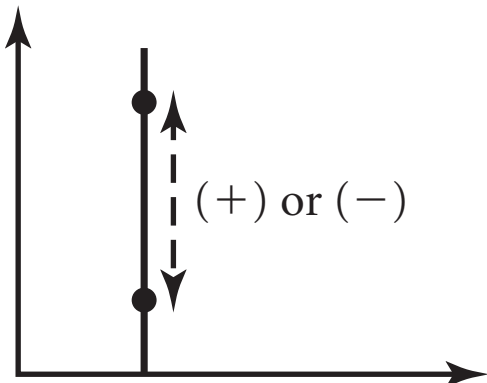
The change in  $y$  and the change in  $x$  are both positive or both negative. The ratio  $\frac{\text{change in } y}{\text{change in } x}$  will be positive, so the slope is positive.



The change in  $y$  is positive but the change in  $x$  is negative. Or the change in  $y$  is negative but the change in  $x$  is positive. The ratio  $\frac{\text{change in } y}{\text{change in } x}$  will be negative, so the slope is negative.



The change in  $y$  is zero and the change in  $x$  is positive or negative. The ratio becomes  $\frac{0}{\text{change in } x}$ , so the slope is 0.



The change in  $y$  is positive or negative and the change in  $x$  is zero. The ratio becomes  $\frac{\text{change in } y}{0}$ , and the slope is undefined.

## Properties of Numbers

For any values of  $a$ ,  $b$ , and  $c$ , these properties are true:

### Distributive Property

$$a(b + c) = a(b) + a(c) \quad \text{Example: } 6(-2 + 3) = 6(-2) + 6(3)$$

### Commutative Property of Addition

$$a + b = b + a \quad \text{Example: } 3 + 4 = 4 + 3$$

### Commutative Property of Multiplication

$$ab = ba \quad \text{Example: } \frac{1}{2} \cdot \frac{3}{4} = \frac{3}{4} \cdot \frac{1}{2}$$

### Associative Property of Addition

$$a + (b + c) = (a + b) + c \quad \text{Example: } 2 + (1.5 + 3) = (2 + 1.5) + 3$$

### Associative Property of Multiplication

$$a(bc) = (ab)c \quad \text{Example: } 4\left(\frac{1}{3} \cdot 6.3\right) = \left(4 \cdot \frac{1}{3}\right)6.3$$

## Properties of Equality

Given  $a = b$ , for any number  $c$ ,

### **Addition Property of Equality**

$$a + c = b + c$$

### **Subtraction Property of Equality**

$$a - c = b - c$$

### **Multiplication Property of Equality**

$$ac = bc$$

### **Division Property of Equality**

$$\frac{a}{c} = \frac{b}{c} \quad (c \neq 0)$$